

WHAT IS CLAIMED IS:

1 1. A method of performing an endoscopic surgical procedure on a target
2 site within a body cavity of a patient comprising:
3 operatively coupling moveable actuator pins of a surgical instrument with a
4 driver of a robotic arm to releasably couple the surgical instrument to the robotic arm;
5 introducing a distal portion of said surgical instrument through a percutaneous
6 penetration into the body cavity within the patient;
7 pivoting the surgical instrument about the percutaneous penetration by moving
8 a proximal portion of said instrument outside the body cavity with a plurality of degrees of
9 freedom of movement using the robotic arm.

1 2. The method of claim 1 further comprising establishing a center of
2 rotation at a desired location along said surgical instrument, such that said robotic arm
3 constrains movement of the instrument about said center of rotation in the course of
4 manipulation of tissue with the instrument within the body cavity.

1 3. The method of claim 1 wherein an end effector is operatively coupled
2 to the actuator pin with a linkage, wherein displacing the actuator pin along a shaft of the
3 surgical instrument actuates the end effector.

1 4. The method of claim 3 wherein coupling comprises releasably
2 disposing the actuator pin within an aperture of the driver.

1 5. The method of claim 4 wherein the actuator pin extends through a slot
2 in the surgical instrument and is positioned substantially orthogonal to the linkage.

1 6. The method of claim 3 further comprising moving the end effectors
2 with a plurality of degrees of freedom of movement within the body cavity of the patient.

1 7. The method of claim 6 wherein the end effectors of the surgical
2 instrument has three degrees of freedom.

1 8. The method of claim 6 wherein moving comprises articulating a
2 plurality of rotational joints coupling rigid shaft elements.

1 9. The method of claim 3 comprising opening and closing jaws of the end
2 effector.

1 10. The method of claim 1 further comprising remotely controlling
2 movement of the surgical instrument with an input control device.

1 11. The method of claim 10 further comprising detecting forces and
2 torques applied to the surgical instrument.

1 12. The method of claim 11 comprising transmitting feedback signals to
2 the input control device based on the forces and torques applied to the surgical instrument.